# MS860G
# WiFi
# Bar Code
# Scanner

unitech

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## INTRODUCTION

The MS860G WiFi laser bar code scanner is one of the newest members of Unitech's MS series. The MS860G incorporates the latest WiFi technology, making it ideal for real-time bar code data collection in warehouse, loading dock, inventory, back office, document tracking, retail environments - anywhere cables would restrict movement or limit access.

The incorporated 802.11b module allows the MS860G to be used within approximately 100 feet (30m) from an Access Point (AP) in an office environment, and up to 330 feet (100m) in an open environment. This gives users mobility and freedom to scan bulky and difficult to reach items.

The cradle of MS860G works as a battery charger for the scanner. When resting in the cradle, the scanner can reach a fully charged state in 4½ to 5 hours. When fully charged, the scanner can provide up to 16 hours scanning time. For long-term product storage, the scanner can be powered off by using the scanner's push down on/off switch. Alternatively, the scanner can remain powered but unused for up to 1 month before the batteries require recharging.

The MS860G offers checkout personnel the ability to scan bulky items without the need for heavy lifting by customers or checkout personnel, making for added convenience and safety. The MS860G is perfect for applications such as supermarkets, hypermarkets, shopping clubs, retailers, light warehouse, and manufacturing.



MS860G Scanner                          MS086 Cradle

# INTRODUCTION

## QUICK START

1. Connect the plug of the power adapter into the power jack on the cradle, and connect the power adapter into an AC outlet. You will hear a beep, and the Power Status and Charging Status LEDs on the top of the cradle will glow green.

2. Use an unfolded paperclip to push down the battery power on/off internal switch located inside the round hole on the yellow warning label underneath the scanner. You will feel a 'click' as you push down the switch and then hear one beep from the scanner. When shipped from the factory, the scanner's on/off switch is in the "off" position, so the scanner must be switched on before operation.

3. Place the MS860G scanner on the cradle - the cradle's Charging Status LED will now glow red while charging. After 4½ to 5 hours the status LED color will change to green, meaning that the MS860G has been fully charged and is ready to use.

4. Four ways were provided to setup TCP/IP network for scanner: using barcode setting, using VCOM utility web program, using SCM and using monitor.exe

a. Using appendix G barcode chart for scanner TCP/IP network setting, turn on the scanner, scan "Enter into command Mode ""default""CR($M)""EE", network setting will go back to factory default; IP: 192.168.1.250, Mask: 255.255.255.0, Gateway: 192.168.1.254. Barcode setup detail will be shown in the later chapter.

b. Using VCOM utility web program, prepare a WLAN AP: SSID="slandemo", WEP-off, IP-192.168.1.1, power on the scanner, scanner default IP=192.168.1.250, open VCOM utility and click "Search" button, you will see another SNMP Search screen, click "Search" button and you will see 192.168.1.250 shown in the IP list, click on the IP address and web configuration program will be opened, you can configure all your needs to the scanner by this web program.

c. Using SCM program, install scanner configuration manager from user guide CD, once the installation was finished, CSM icon will be shown on the desktop, open the program and click "Tools""WiFi-Setup", please follow the wizard, after you fill in all network configuration and you will be able to print out the barcode setup sheet, you can scan the printed barcode sheet to finish you network configuration.

Once the scanner is connected to the WLAN, the flashing green LED on the scanner turn into steady green.

# INTRODUCTION

## IMPORTANT NOTES

- "ACK" helps avoid data loss during an Access Point (AP) power disconnection. To turn "ACK" on, follow the steps below:

  > Print out pg. 65 – RS232 Settings
  > Scan:
  > Enter Group 4
  > C5
  > 1
  > Exit

  After "ACK" is turned on, the scan data transmission rate might be a little slower, depending on your wireless network condition.

- If "ACK" is turned off, the scan data transmission rate will be normal, but because the scanner's read and transmit functions are separate, by the time the scanner learns that it's become disconnected from the AP, between 5 to 8 scanned data records may not have been sent to the network, even though the scanner gives a "good read" signal after each of them.

- Some APs may not be compatible with MS860G reconnection while out of range. In this case the MS860G will need to be powered off and on again, and also VCOM communication will need to be restarted.

- The VCOM Utility supports Windows 2000 and XP. Unfortunately, Windows 98 and NT are not supported.

- If using bar codes to configure your network settings, before you start scanning, power off the scanner, and then scan the "Enter Group 10" bar code on page 62 within 5 seconds after turning the scanner power back on.

# INTRODUCTION

**SCANNER AND ACCESSORIES:**

MS860G-W8A: MS860G WiFi laser scanner w/US plug

MS860G-W8B: MS860G WiFi laser scanner w/UK plug

MS860G-W8E: MS860G WiFi laser scanner w/UP plug

400479: Unitech MS860G WiFi Scanner user guide CD

400480: Unitech MS860G WiFi Scanner quick start guide sheet

*Scanner Configuration Manager: Windows based software providing a user-friendly interface for easier scanner configuration.


*Available on the Unitech website – www.unitech-adc.com


1010-500858: AC 110-240V, DC9V/2A power adaptor with US plug

1010-600860G: AC 110-240V, DC9V/2A power adaptor with UK plug

1010-600859: AC 110-240V, DC9V/2A power adaptor with European plug


Other items may be ordered for the specific protocol being used.

To order additional items, contact the dealer and distributor.

# INTRODUCTION

## SCANNER PARTS:



### Scanner LED

The MS860G has one LED indicator located on the head of the scanner which indicates the operating status of the scanner.

#### Red LED is ON
When the scanner attempts to read a bar code, the LED will glow red.

#### Single Green LED Flash
When the scanner successfully reads a bar code the scanner LED flashes green once, and you will hear a single beep.

#### Flashing Green LED

1. When the scanner reads a 'start configuration' bar code ("Enter Group 1", for instance) and enters configuration mode, the scanner LED will flash green while the scanner simultaneously gives one High-Low-High tone beep. Upon exiting configuration mode, the scanner will give one High tone beep, and the scanner LED will stop flashing.

2. The scanner is powered on but not yet connected to the WLAN or the connection to the WLAN is broken.

#### Green LED remains ON
When the scanner is powered on and connected to the WLAN successfully.

# INTRODUCTION

**Buzzer**

The MS860G provides audible feedback while it is in operation. These sounds indicate the operating status of the scanner.

**One High Tone Beep**
The scanner will beep once after successfully reading a bar code.

**One High-Low-High Beep**
After scanning a 'begin configuration' bar code ("Enter Group 5", for instance), the scanner LED will flash green while the scanner simultaneously gives one high-low-high tone beep. Upon exiting configuration mode by scanning an "Exit" bar code, the scanner will give one high tone beep, and the scanner LED will stop flashing.

**Continuous High-Low Beeps**
If scans are attempted out of range, communication will be broken. The scanner LED will remain red and you will hear a continuous high-low beep from the scanner when you scan bar codes. If the Access Point is powered off, this means the communication between the scanner and the Access Point is lost. You will also hear a continuous high-low beep from the scanner when you scan bar codes.

# INTRODUCTION

## CRADLE PARTS



Power On / Off LED

Battery Charging LED

Charge Contacts

Power Plug

### Cradle LEDs

The MS860G charging cradle has two LED indicators (power on/off status and battery charging status).

### Power ON/OFF Status LED stays ON

When the power adapter plug is connected into the power jack on the cradle, and the power adapter is connected into an AC outlet, the cradle will beep, and the LED on the top of the cradle will remain on.

### Battery Charging Status LED remains Red

The red LED indicates the scanner battery is charging.

### Battery Charging Status LED remains Green

The LED changes to green when scanner battery charging is complete.

**Please Note:**

The MS086 Cradle has an interface port (to the left of the power plug) and a communication LED next to the two other LEDs. **These components are inactive** due to the wireless nature of the MS860G WiFi.

# WiFi INTRODUCTION

## CHARGING THE SCANNER:

Prior to performing any operation with the scanner, make sure it has been fully charged.

### How to determine if the scanner needs recharging:

1. During operation, a flashing red scanner LED indicates the scanner has low power.

2. When the trigger is pressed and a scan laser line is not visible (do NOT look directly into the scanner), the scanner has no power. Make sure the scanner is not merely switched off. To charge the scanner, place the unit into the cradle. The battery status LED on the cradle will glow red, indicating the charging process has begun.

### To Charge the MS860G:

Simply place the MS860G into the MS086 Charging Cradle. Make sure the MS086 Cradle is plugged into an available electrical outlet via its Power Supply.

A complete charging process takes about 4 to 5 hours, during which the cradle's battery charging LED will glow red. After charging is complete the battery charging LED will remain a steady green. When charging the scanner for the first time, make sure the scanner remains on the cradle until after the battery charging LED changes from red to green.

### Manufacturer's Suggestion:

If the scanner is not to be used for a long period of time, it is recommended that you turn off the battery power of the scanner. Use an unfolded paper clip to push down the internal power on/off switch, located inside the round hole on the yellow laser warning label of the scanner (see page 7). You will feel a 'click' when the internal switch is moved up to the "OFF" position or when the internal switch is moved down to the "ON" position.

To ensure that the scanner has been switched off, press the scanner's trigger and make sure that the scanner's LED does not glow red.

# WiFi NETWORK SETTINGS

## INTRODUCTION

The MS860G WiFi is designed to connect to your computer(s) via the existing wireless network through one of its Access Points (APs), thereby eliminating the dedicated wireless receiving unit required by other types of wireless scanners.

Integrating the MS860G into the wireless network is the same as integrating any other piece of wireless hardware, requiring that you give it its own unique IP address, which can be obtained from your network administrator. The MS860G WiFi's default settings and explanations are shown below and described on the following pages.

| Item | Default Setting |
|---|---|
| **IP Address** | 192.168.1.250 |
| **IP Subnet Mask** | 255.255.255.0 |
| **Gateway IP Address** | 192.168.1.254 |
| **SSID** | wlandemo |
| **RF Channel** | 6 |
| **WEP** | Disabled |
| **Authentication Type** | Auto |

**Note:** The default settings must be changed to allow the MS860G and the AP start communicating, and default settings are provided merely as a starting point.

## How the MS860G WiFi actually works:



Scanners normally communicate directly with host computers via keyboard or RS232 interface. The MS860G WiFi instead communicates over your wireless network with the nearest Access Point (AP), which then communicates with the host computer. The host computer uses the VCOM utility to convert the WiFi signal to a Virtual Com Port (RS232) signal, which the host computer recognizes as one of the standard scanner interfaces.

# WiFi NETWORK SETTINGS

So, two things must be configured: the MS860G's Wireless Network settings, and the host computer's Virtual Com Port settings. Consult your network administrator for the appropriate network wireless settings for your MS860G which must be manually configured via Scanner Configuration Manager or bar codes (see below and pages 24 to 39). VCOM should automatically create a "virtual com port" for the Access Point to communicate data through. If this doesn't happen automatically, then refer to the Troubleshooting section (page 71).

## VCOM

The VCOM utility's function is to convert incoming wireless data into Virtual Com Port data that your computer expects from a scanning device. Unlike SCM or Bar Code Scanning (below) VCOM cannot modify the MS860G's configuration. VCOM simply pairs the MS860G's existing IP address, configured via SCM or bar code scanning (see below) with its host computer(s) virtual com port.

## Modifying the WiFi settings:

If the MS860G's settings need to be manually modified, this can be accomplished via the two different methods below, each described in full starting on page 10.

## SCM

Scanner Configuration Manager (SCM) is a proven and powerful utility for scanner configuration. Easy to use, it is probably the most straightforward method of modifying your MS860G's wireless settings. Because of the wireless communication between the MS860G and the host computer, SCM settings cannot be directly downloaded to the MS860G. Instead, SCM provides for printing a series of bar codes derived from SCM's configuration, and these bar codes are then scanned by the MS860G.

## Bar Codes

Direct bar code scanning is the simplest, most direct, but most tedious method of configuring the MS860G scanner. Once mastered, however, it allows the user full "hands-on" control over the MS860G's wireless settings. Detailed instructions for bar code scanning start on page 20.

# WiFi NETWORK SETTINGS

## 1. Application Connectivity

### TCP Client Mode：



**TCP client#1**

Default SSID : **wlandemo**
Default IP : **192.168.1.240**
User name : **admin**
Password : **password**
Destination IP : **192.168.1.2**
Destination Port :**10002 (Vcom port 2)**

**TCP server**

SSID : **wlandemo**
AP

IP : **192.168.1.2**
Server Port:10002 for Vcom port#2
Server Port:10012 for Vcom port #12
(VCOM configuration ref Figure 2 )

**TCP client#10**

Default SSID : **wlandemo**
Default IP : **192.168.1.250**
User name : **admin**
Password : **password**
Destination IP : **192.168.1.2**
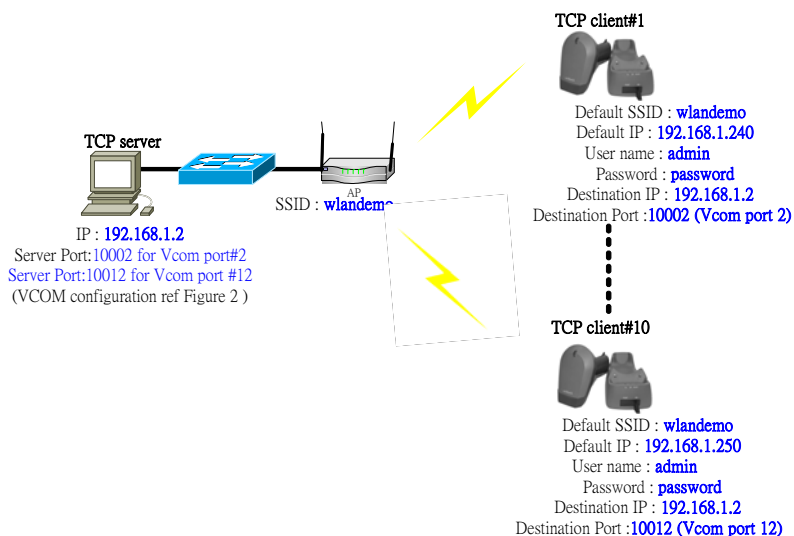Destination Port :**10012 (Vcom port 12)**

Figure 1 Topology

One may use monitor.exe utility or right click toolbar to access Virtual com (Serial/IP) control panel, (for more detail refer to Change Virtual COM setting section).
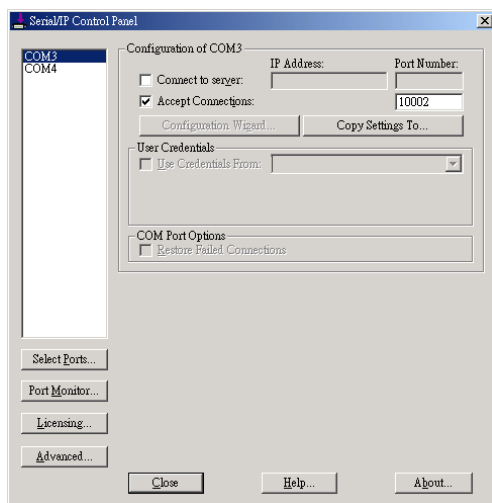


Figure 2 Virtual Com setting page

# WiFi NETWORK SETTINGS

## 2. Installation Procedures:

**Step 1**: One should prepare an access point and change its SSID to wlandemo.

**Step 2**: Once SW1601T attached to Access Point, one may use Monitor.exe to Find SW1601T & its IP address, even ones PC and SW1601T are in different subnet.

**Note:** one may click re-scan button to find all the SW1601T in the subnet (Figure 3).
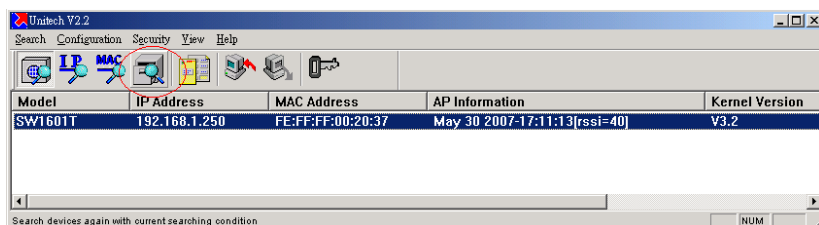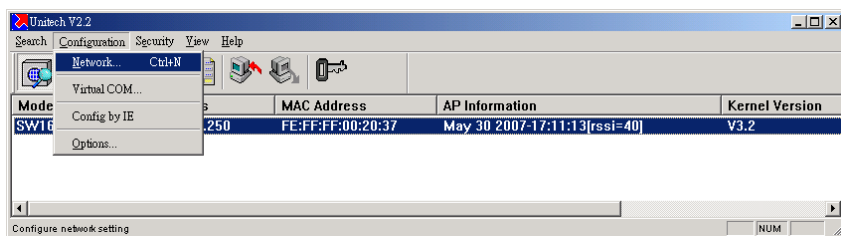


Figure 3 re-scan function

**Step 3**: Configure SW1601T by monitor

### 1. Change SW1601T's IP address

(1) Click "*Configuration*".

(2) Select "*Network*" ->it will pop-up Network setting page (Figure 4).

(3) One may change the IP address/subnet mask/Gateway to meet one's subnet.

# WiFi NETWORK SETTINGS



Figure 4 Networking setting page

(4) Click "*OK*" to configure the setting, and it will pop-up Authorize page, one may input the password and then click "*Authorize*" button to make the setting effective (Figure 5).

**Note:** the default user name is "**admin**", password is "**password**".
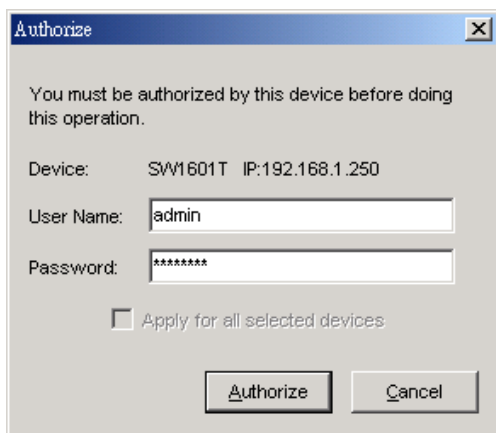


Figure 5 Authorize page

(5) After reboot, the settings should be changed to new settings.

# WiFi NETWORK SETTINGS

### 2. Change Virtual COM setting:

(1) Click "*Configuration*".

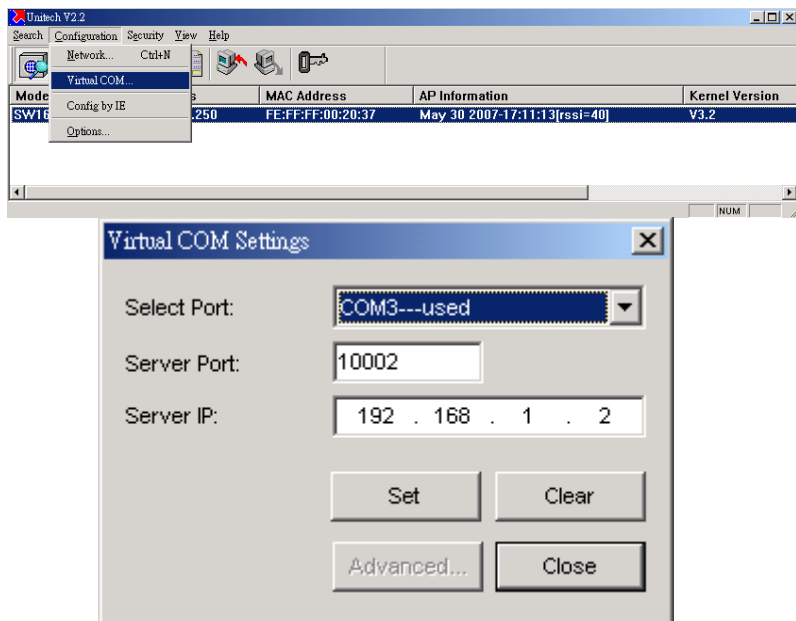(2) Select "*Virtual COM*" -> it will pop-up Virtual COM setting page (Figure 6).



Figure 6 Virtual COM & TCP server Settings

(3) One may select "*Select Port*" and then click "*Set*" to add Virtual COM Port, after configure successful the port selected should change to "*used*" state and "*Advanced button*" should be enabled, one may also click "*Advanced button*" to configure Virtual COM further. (Figure 7)
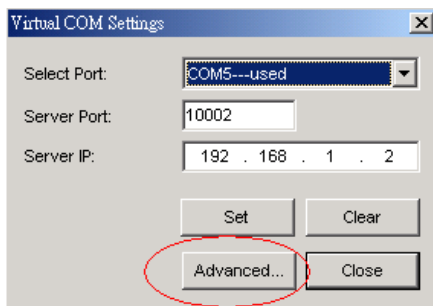


Figure 7 Access Virtual COM (Serial/IP) control panel

# WiFi NETWORK SETTINGS

(4) One may use the Default Server port & Server IP to connect Server IP (TCP server)

**Note:**

1. The PC which run moniter.exe utility should detect the IP address itself and the IP address should be act as TCP server if Server IP is different from the monitor.exe detected one may assign it by oneself.

2. One shouldn't change the Server port & Server IP if one want to use the PC which run moniter.exe utility to act as TCP server.

3. If one's PC wants to manage all SW1601T in the subnet, one should assign different server port for each SW1601T, one may use the default settings which monitor.exe utility provide.

4. One may use "*Clear*" button to remove Virtual com port settings, after remove the "*used*" state should be erased.

5. One may also click the toolbar below to access Virtual COM (Serial/IP) control panel (Figure 8).

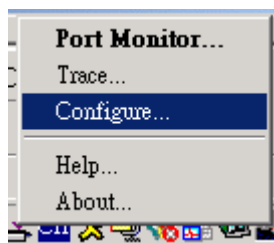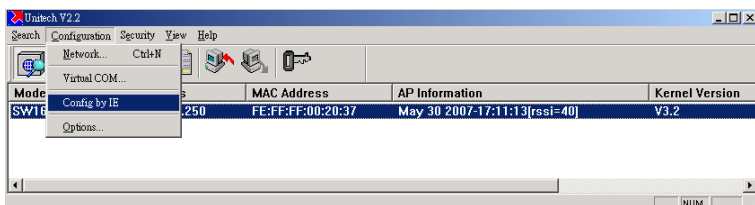

Figure 8 Access Virtual com (Serial/IP) control panel via toolbar

## 3. Change SW1601T's network, Basic Setup、Radio、Security and RS232 Setup settings by web browser.

**Note:** Make sure ones PC is located on the same subnet as SW1601T.

# WiFi NETWORK SETTINGS



After click "**Config by IE**", it should pop-up the web page below:
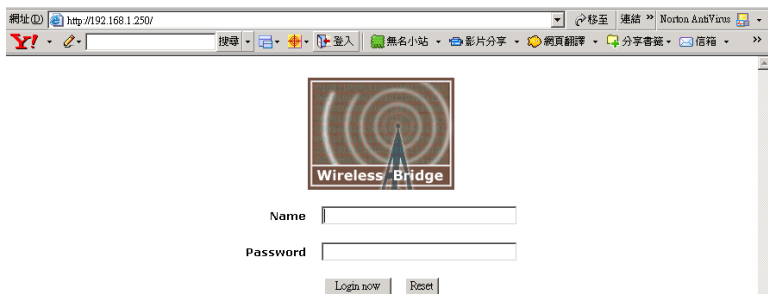


## 3. Software Installing

SW1601T wireless-Serial Server is shipped with default settings shown in the following table:

| Property | Default Value |
|---|---|
| Default SSID | **wlandemo** |
| IP Address | **192.168.1.250** |
| Gateway | **192.168.1.254** |
| Subnet Mask | **255.255.255.0** |
| User Name | **admin** |
| Password | **password** |
| RS232 Setup | 38400, None, 8, 1, No flow control, Type: TCP client, Destination IP: 192.168.1.2, destination port 4660, Virtual COM enable |

# WiFi NETWORK SETTINGS

## 2.3 Configure by web server

**Step 1.** Make sure ones PC is located on the same subnet as SW1601T.

**Step 2.** Open a web browser, then enter in the IP address of SW1601T to be configured.

**Note:** Default user name is **admin** and default password is **password**.

**Step3.** SW1601T's network, Basic Setup、Radio、Security and RS232 Setup settings should be configured in different web pages.

**Step.4**. Click "*Apply*" button to save settings and make the change effective.

## GLOSSARY

### IP Address

IP Address (short for Internet Protocol) is simply four numbers (like 192.168.1.250) separated by periods that is used to identify a particular device within a network, just as an employee number is used to identify an individual person within a company.
The IP Address can either be automatically assigned by the wireless network or manually assigned by the user. The automatically assigned IP Address is available via your AP software, or you can assign your own IP Address and see if it's accepted by the network.

### IP Subnet Mask

IP Subnet Mask is like the IP Address for the entire network. Every device within a network shares the same IP Subnet Mask. The IP Subnet Mask number is available via your AP software.

### Gateway IP Address

The Gateway IP Address is only necessary if your network has outside access, as in a WAN (Wide Area Network). Because of the security issues involved in outside access, the Gateway IP Address is only available from your Network Administrator or Service Provider.

### SSID

SSID (Service Set ID) is the name of the wireless Access Point you choose for your MS860G to communicate with. Available via your AP software.

# WiFi NETWORK SETTINGS

## RF Channel

There are 11 potential RF (Radio Frequency) Channels, numbered 1 through 11, to communicate over, and your MS860G and the nearest Access Point will use one of them. Because the MS860G and the AP will sort this out for themselves, it is not necessary for the user to specify a channel, however, a default RF Channel is provided by the MS860G as a starting point.

## WEP

WEP (Wireless Encryption Protocol) is a security key for communicating with an access point. If the correct key is not presented, communication is denied. Because WEP is used for security reasons, it must be obtained from your Network Administrator.

## Authentication Type

If WEP (see above) is used, then the security key can be presented to the AP in three different ways:
- **Disabled** - means communication with the AP is not possible if WEP is on because the security key will not be presented.
- **Auto** - means the MS860G will automatically present the security key when requested by the Access Point.
- **On** - means that the security key is always presented by theMS860G, whether it is requested or not.

## Alias

Alias is merely a name for the scanner that would be more easily recognizable than an IP Address. For instance: "Fred's MS860G", "S103", or "Warehouse-23".

## Contact

Contact is the name of the IT person or Network Administrator that you would go to in case of trouble.

## Location

Location is the usual location of the scanner, be it the "Warehouse", "Virginia's Office", or wherever.

## SNMP Community

SNMP (Simple Network Management Protocol) is a software tool to manage wireless networks. If your Network Administrator is using SNMP, then they will be able to give you your SNMP Community name.

# WiFi NETWORK SETTINGS

**IMPORTANT:**

Once you have completed the network configuration for the scanner, VCOM will be required to configure the virtual com port, which means the VCOM utility must run in the background.

Some Access Points may not be able to re-connect to the MS860G after it's been out of range. In this case the scanner will need to be powered off and powered on again, and the VCOM communication must be re-started.

VCOM Utility supports Windows2000 and XP. Unfortunately, Windows98 and NT are not currently supported.

# WiFi NETWORK SETTINGS

**USING BAR CODES TO SET SCANNER NETWORK:**

The WLAN default settings are shown below.

WLAN Default Settings:

| Item | Default Setting |
|---|---|
| **IP Address** | 192.168.1.250 |
| **IP Subnet Mask** | 255.255.255.0 |
| **Gateway IP Address** | 192.168.1.254 |
| **SSID** | wlandemo |
| **RF Channel** | 6 |
| **WEP** | Disabled |
| **Authentication Type** | Auto |

Use the TCP/IP barcode chart on page 62 and the ASCII Chart on pages 65 to 68 to configure your scanner to your own network settings, as the example below:

SSID: MySSID
IP: 192.168.1.100
Mask: 255.255.255.0

Please follow the steps below:

Scan the **Enter Group 10** bar code
Then scan: **SSID Space M y S S I D CR**
Then scan: **IP Space 1 9 2. 1 6 8. 1. 1 0 0 CR**
Then scan: **MASK Space 2 5 5. 2 5 5. 2 5 5. 0 CR**
Lastly, scan: **SE CR EE**

Other than that last line, it's pretty self-explanatory. Several parameters can be modified together in one session, as above. Or, only one parameter can be modified per session, as below. The last commands - **SE**, **CR**, **EE** - are simply a sequence to end the programming mode, and along with **Enter Group 10** must be included whenever programming network settings via bar code.

To turn DHCP on, scan the following sequence:

Scan the **Enter Group 10** bar code
Then scan: **DHCP Space 1 CR**
Lastly, scan: **SE CR EE**

# WiFi NETWORK SETTINGS

General Command List:

| | |
|---|---|
| MODE | <B(SS) / A(d-hoc) / P(seudo/BSS)>, Set network mode |
| SSID | <SSID>, Set SSID |
| CHAN | <1 - 14>, Set channel |
| PSMODE | <1 / 0>, PS mode ON/OFF |
| WEP | <1 / 0>, WEP ON/OFF |
| DEFAULT | Restore configuration to factory default |
| SAVE | Save configuration to flash |
| EXIT | Save configuration to flash |
| SE | Save and exit configuration |
| BAUD | <0 / 1 / 2 / 3>, Set RS232 Baudrate |
| AA | <O(pen) / S(hare) / A(uto)>, Set Authentication Algorithm |
| WK | <1 - 4> <Key in Hex> |
| WKID | <1 - 4>, Set WEP Key ID |
| IP | <IP address>, Set IP |
| MASK | <IP address>, Set IP Mask |
| GW | <IP address>, Set Gateway IP |
| DHCP | <1 / 0>, Set DHCP client ON or OFF |

1. IP

   Set IP address
   Example: **IP Space 192.168.1.250 CR**

2. GW

   Set gateway IP address
   Example: **IP Space 192.168.1.1 CR**

3. MASK

   Set network MASK IP address
   Example: **MASK Space 255.255.255.0 CR**

4. DHCP

   Turn DHCP client on or off
   Example: **DHCP Space 1 CR** (turn on DHCP client)
   Example: **DHCP Space 0 CR** (turn off DHCP client)

5. SSID

   Set SSID
   Example: **SSID Space wlandemo CR** (set SSID to "wlandemo")

6. MODE

   Set mode to infrastructure or ad-hoc
   Example: **MODE Space B CR** (set mode to infrastructure)
   Example: **MODE Space A CR** (set mode to ad-hoc)

# WiFi NETWORK SETTINGS

7. WEP
    Turn WEP on or off
    Example: **WEP Space 1 CR** (turn on WEP)
    Example: **WEP Space 0 CR** (turn off WEP)

8. WKID
    Set which WEP key that you want to use, of which you have four.
    Example: **WKID Space 1 CR** (use WEP key number 1)
    Example: **WKID Space 2 CR** (use WEP key number 2)
    Example: **WKID**, **Space 3 CR** (use WEP key number 3)
    Example: **WKID Space 4 CR** (use WEP key number 4)

9. WK
    Set WEP key association with a WEP key number.
    Following examples set 64 bit encryption keys:
    Example: **WK Space 1 2002031105 CR**
            (WEP key number 1 - 2002031105)
    Example: **WK Space 2 2002031106 CR**
            (WEP key number 2 - 2002031106)
    Example: **WK Space 3 2002031107 CR**
            (WEP key number 3 2002031107)
    Example: **WK Space 4 2002031108 CR**
            (WEP key number 4 2002031108)

10. AA
    Set Authentication Algorithm to OPEN, SHARE, or AUTO
    Example: **AA Space O CR**
            (set authentication algorithm to OPEN)
    Example: **AA Space S CR**
            (set authentication algorithm to SHARE)
    Example: **AA Space A CR**
            (set authentication algorithm to AUTO)

11. PSMODE
    Turn power saving mode on or off
    Example: **PSMODE Space 1 CR** (turn power saving mode on)
    Example: **PSMODE Space 0 CR** (turn power saving mode off)

12. CHAN
    Set channel 1~14 when under ad-hoc mode
    Example: **CHAN Space 1 CR** (set to channel 1)
    Example: **CHAN Space 2 CR** (set to channel 2)
    Example: **CHAN Space 14 CR** (set to channel 14)

# WiFi NETWORK SETTINGS

13. SAVE

   Save the configuration settings
   Example: **SAVE CR**

14. SE

   Save the configuration settings and reboot
   Example: **SE CR**

15. DEFAULT

   Restore configuration settings to factory default, and
   automatically reboot the module
   Example: **DEFAULT CR**

16. EXIT

   Reboot the module without saving any configuration
   changes
   Example: **EXIT CR**

**IMPORTANT:**

   Once you have completed the network configuration for
   the scanner, VCOM will be required to configure the virtual
   com port, which means the VCOM utility must run in the
   background.

   Some Access Points may not be able to re-connect the
   MS860G and its cradle after it's been out of range. In this
   case the scanner will need to be powered off and powered
   on again, and the VCOM communication must be
   re-started.

   VCOM Utility supports Windows2000 and XP.
   Unfortunately, Windows98 and NT are not currently
   supported.

   Before entering into Command Mode, power off the
   scanner and then scan "Enter Group 10" on page 62 within
   5 seconds after powering the scanner back on.

# SCANNER CONFIGURATION MANAGER

## Scanner Port

Scanner Port parameters refer to scanner functions (such as Double Verification, Scanning Mode, etc.) and some simple data editing features. For more powerful data editing, refer to the Data Editing section starting on page 37.

### Terminator

The Terminator is a command that follows the input of bar code data.
Four different terminators can be selected here:
  "Enter"
  "Return (on numeric keypad)"
  "Field Exit or Right Control"
  "None"
Alternative terminators (such as Tab) can be configured via the Postamble function (see page 27).
Default is "Enter".

## Scanner Port, continued

### Use Code ID

The Code ID function can be used to identify the type of bar code that is being scanned by inserting an identifying letter (refer to the chart at right) at the beginning of the bar code input.

For example: if the Code ID function is on, and a bar code string of "54321" was output as "M54321", the bar code would thus be identified as type Code 39.

Default is "No".

| | |
|---|---|
| Codabar | N |
| Code 11 / Telpen | J |
| Code 32 | T |
| Code 39 | M |
| Code 93 | L |
| Code 128 | K |
| Delta Code | D |
| EAN-8 | FF |
| EAN-13 | F |
| I 2 of 5 | I |
| Label Code IV or V | B |
| MSI | O |
| Plessey Code | P |
| S 2 of 5 | H |
| Toshiba Code | C |
| UCC / EAN 128 | ]C1 |
| UPC-A | A |
| UPC-E | E |

### Double Verification

Double Verification enables the MS860G to verify the accuracy of the output by outputting only after a specified number (from 0 to 7) of identical results. For instance, if 3 is selected, the MS860G will not output the bar code data until it's obtained 4 identical scan results (the original scan plus 3 verifying scans). Because the MS860G normally scans at a rate of 33 scans per second, this process should take less than a fraction of a second, even for higher values, for good quality bar code labels.
Default is "0-Off".

# SCANNER CONFIGURATION MANAGER

## Scanner Port, continued

### Scanning Mode
Scanning mode refers to the method by which scans are initiated, whether by pressing a trigger, or simply presenting a bar code to a continuously reading scanner. Scanning can occur in seven different ways:

- *Trigger* scan causes the scanner light to remain on as long as the trigger is depressed, whether the bar code is recognized or not.
- *Flashing* causes the scanner to flash continuously after the trigger is briefly pressed until it detects a bar code and outputs the data. The scanner light will then remain on in anticipation of another bar code for approximately 12 seconds, after which it will begin flashing again. A second trigger press stops the scanning.
- *Multiscan* allows multiple scans while holding down the trigger.
- *One Press One Scan* causes the scanner light to remain on after the trigger is briefly depressed until a bar code is recognized and
- *Test* is similar to the Flash setting except that the scanner outputs bar code data in a rapid-fire manner as long as a bar code is presented to the scanner. Normally, the MS860G will not output the same bar code twice in a row (in order to prevent double-scans), but in test mode this feature is turned off.
- *Old Laser Flash* causes the scanner to flash continuously after the trigger is pressed and will scan each bar code only once per presentation. A second trigger press stops the scanning. This mode is to accommodate old style laser scanners which could be damaged by continuous scanning.
- *Continuous* causes the scanner light to remain on and scan bar codes as they are presented. Bar Codes can only be "double scanned" after a brief interval.
  Default is "Trigger".

### Label Type
Toggle between reading only Positive and both Positive and Negative (with the black and white areas reversed) bar codes. Reading both positive and negative bar codes can be useful in the graphics industry when negative images must be proofed.
Default is "Positive"

# SCANNER CONFIGURATION MANAGER

## Scanner Port, continued

### Aim Function for Long Range Engine
The Aim function causes a laser scanner to output a "pin-point" aiming aid for a specified period of time (see below) to enable a user to more easily scan distant bar code labels.
Default is "No".

### Aiming Time for Long Range Engine
The Aiming Time function specifies the duration of the Aim Function (see above) The length of duration can be specified from 500ms to 2 seconds, in half-second increments.
Default is "1 second".

### Preamble
Insert a string of characters prior to the actual scanned data. Pre-defined characters include:

- <t>      Tab
- <r>      Carriage Return
- <n>      Line Feed
- <d>      Any Digit (data editing)
- <a>      Any Letter (data editing)
- <*>      Interblock Delay (data editing)
- <">      (quotation marks)
- <dd>    Character in hexadeximal notation
- <<>      < (less than)
- <>>      > (greater than)

The above special characters must be bracketed by < > symbols as shown.
Function codes (F keys, cursor up, Enter, etc.) can also be inserted via hexadecimal code (accessable in a linked menu) and must include surrounding brackets (<>).
Letters and numbers should be entered directly by keyboard input without surrounding brackets (<>).
Default is "None".

### Postamble
Identical to Preamble (above), but characters are inserted after scanned data. A common postamble would be to insert a "Tab" in lieu of an "Enter" terminator (see page 24).
Default is "None".

# SCANNER CONFIGURATION MANAGER

## Bar Code Symbologies

Modify the output characteristics of 16 of the most popular bar code symbologies in current use. Following are the bar code symbologies and their modifiable parameters.

### Code 39

- *Enabled* toggles the ability for the scanner to read Code 39 on or off.
  Default is "Yes".
- *Code ID (Standard)* is a user-definable identification letter for Standard Code 39, which is referred to in the "Use Code ID" function on page 25.
  Default is letter "M".
- *Code ID (Full ASCII)* is the same as Code ID (Standard), above, except that the symbology is Full ASCII Code 39.
  Default is also letter "M".
- *Type* toggles Code 39 between Standard and Full ASCII. Default is "Full ASCII".
- *Check Digit* defines whether or not a check digit (to insure data accuracy) is calculated, and if so, whether it should be sent or not.
  Default is "Not Calculate".
- *Send Start/Stop* toggles sending or not sending start/stop sentinels (* in the case of Code 39).
  Default is "No Send".
- *Minimum Length* defines the minimum length the user will accept for a valid bar code.
  Default is "0".
- *Maximum Length* defines the maximum length the user will accept for a valid bar code.
  Default is "48".

## Bar Code Symbologies, continued

### Interleaved 2 of 5

- **Enabled** toggles the ability for the scanner to read I 2 of 5 on or off.
  Default is "Yes".
- **Code ID** is a user-definable identification letter for I 2 of 5, which is referred to in the "Use Code ID" function on page 25.
  Default is letter "I".
- **Fix Length (by first 3 reads)** fixes the length of acceptable subsequent bar code reads from the first three bar codes read. Useful as a data verification if all bar codes are of a consistent length.
  Default is "No".
- **Check Digit** defines whether or not a check digit (to insure data accuracy) is calculated, and if so, whether it should be sent or not.
  Default is "Not Calculate".
- **Supress Digit** suppresses the output of the first or last bar code digit.
  Default is "Not Suppressed".
- **Minimum Length** defines the minimum length the user will accept for a valid bar code.
  Default is "10".
- **Maximum Length** defines the maximum length the user will accept for a valid bar code.
  Default is "64".

# SCANNER CONFIGURATION MANAGER

## Bar Code Symbologies, continued

### Standard 2 of 5 / Toshiba Code (China Postal Code)

- *Enabled* toggles the ability for the scanner to read S 2 of 5 / Toshiba Code on or off.
  Default is "No".
- *S25 Code ID* is a user-definable identification letter for S 2 of 5, which is referred to in the "Use Code ID" function on page 25.
  Default is letter "H".
- *Toshiba Code ID* is the same as S25 Code ID (above) but instead applicable to Toshiba Code.
  Default is letter "C".
- *Fix Length (by first 3 reads)* fixes the length of acceptable subsequent bar code reads from the first three bar codes read. Useful as a data verification if all bar codes are of a consistent length.
  Default is "No".
- *Check Digit* defines whether or not a check digit (to insure data accuracy) is calculated, and if so, whether it should be sent or not.
  Default is "Not Calculate".
- *Minimum Length* defines the minimum length the user will accept for a valid bar code.
  Default is "10".
- *Maximum Length* defines the maximum length the user will accept for a valid bar code.
  Default is "64".

# SCANNER CONFIGURATION MANAGER

## Bar Code Symbologies, continued

### Code 32
- *Enabled* toggles the ability for the scanner to read Code 32 on or off.
  Default is "No".
- *Code ID* is a user-definable identification letter for Code 32, which is referred to in the "Use Code ID" function on page 25.
  Default is letter "T".
- *Send Leading Character* toggles sending or not sending a leading ('start bar code') character.
  Default is "Send".
- *Send Tailing Character* toggles sending or not sending a tailing ('stop bar code') character.
  Default is "Send".

### EAN 128
- *Enabled* toggles the ability for the scanner to read EAN 128 on or off.
  Default is "No".
- *Code ID* is a user-definable identification letter for EAN 128, which is referred to in the "Use Code ID" function on page 25.
  Default is letter "None".
- *Enable Code ID* determines whether or not to assign a Code ID.
  Default is "No".
- *Field Separator* is a user-definable character to insert between fields.
  Default is "None".

### Code 128
- *Enabled* toggles the ability for the scanner to read Code 128 on or off.
  Default is "No".
- *Code ID* is a user-definable identification letter for Code 128, which is referred to in the "Use Code ID" function on page 25.
  Default is letter "None".
- *Minimum Length* defines the minimum length the user will accept for a valid bar code.
  Default is "1".
- *Maximum Length* defines the maximum length the user will accept for a valid bar code.
  Default is "64".

# SCANNER CONFIGURATION MANAGER

## Bar Code Symbologies, continued

### MSI / Plessey Code
- *Enabled* toggles the ability for the scanner to read MSI / Plessey Code on or off.
  Default is "Yes".
- *MSI Code ID* is a user-definable identification letter for MSI Code, which is referred to in the "Use Code ID" function on page 25.
  Default is letter "O".
- *Plessey Code ID* is the same as MSI Code ID (above) but instead applicable to Plessey Code.
  Default is letter "P".
- *Send Check Digit* toggles whether or not to send a check digit.
  Default is "No Send".
- *Check Digit Formula* defines the formula to calculate the check digit. Options are:
    Double Module 10
    Module 11 Plus 10
    Single Module 10
  Default is "Double Module 10".
- *Minimum Length* defines the minimum length the user will accept for a valid bar code.
  Default is "10".
- *Maximum Length* defines the maximum length the user will accept for a valid bar code.
  Default is "64".

### Code 93
- *Enabled* toggles the ability for the scanner to read Code 93 on or off.
  Default is "Yes".
- *Code ID* is a user-definable identification letter for Code 93, which is referred to in the "Use Code ID" function on page 25.
  Default is letter "L".
- *Minimum Length* defines the minimum length the user will accept for a valid bar code.
  Default is "1".
- *Maximum Length* defines the maximum length the user will accept for a valid bar code.
  Default is "48".

# SCANNER CONFIGURATION MANAGER

## Bar Code Symbologies, continued

### Codabar
- **Enabled** toggles the ability for the scanner to read Codabar on or off.
  Default is "Yes".
- **Code ID** is a user-definable identification letter for Codabar, which is referred to in the "Use Code ID" function on page 25.
  Default is letter "N".
- **Send Start/Stop** toggles sending or not sending start/stop sentinels.
  Default is "No Send".
- **Check Digit** defines whether or not a check digit (to insure data accuracy) is calculated, and if so, whether it should be sent or not.
  Default is "Not Calculate".
- **CLSI Format** deletes the start and stop sentinels, and outputs the data with spaces inserted after the 1st, 5th, and 10th characters.
  Default is "No".
- **Minimum Length** defines the minimum length the user will accept for a valid bar code.
  Default is "3".
- **Maximum Length** defines the maximum length the user will accept for a valid bar code.
  Default is "48".

### UPC-A
- **Enabled** toggles the ability for the scanner to read UPC-A on or off.
  Default is "Yes".
- **Code ID** is a user-definable identification letter for UPC-A, which is referred to in the "Use Code ID" function on page 25.
  Default is letter "A".
- **Send Leading Digit** toggles sending or not sending a leading ('start bar code') digit.
  Default is "Send".
- **Send Check Digit** toggles sending or not sending a check digit.
  Default is "Send".

# SCANNER CONFIGURATION MANAGER

## Bar Code Symbologies, continued

### UPC-E

- *Enabled* toggles the ability for the scanner to read UPC-E on or off.
  Default is "Yes".
- *Code ID* is a user-definable identification letter for UPC-E, which is referred to in the "Use Code ID" function on page 25.
  Default is letter "E".
- *Send Leading Digit* toggles sending or not sending a leading ('start bar code') digit.
  Default is "Send".
- *Send Check Digit* toggles sending or not sending a check digit.
  Default is "Send".
- *Zero Expansion* adds 0s to the bar code output to change the UPC-E output format (8 digits) to UPC-A format (12 digits).
  Default is "No".
- *Enable NSC=1* allows the output of a UPC-E bar code containing a first digit (Number System Character) of "1".
  Default is "No".

### EAN-13

- *Enabled* toggles the ability for the scanner to read EAN-13 on or off.
  Default is "Yes".
- *Code ID* is a user-definable identification letter for EAN-13, which is referred to in the "Use Code ID" function on page 25.
  Default is letter "F".
- *Send Leading Digit* toggles sending or not sending a leading ('start bar code') digit.
  Default is "Send".
- *Send Check Digit* toggles sending or not sending a check digit.
  Default is "Send".
- *Bookland EAN* toggles whether or not to send the EAN-13 bar code data in Bookland EAN (ISBN) format.
  Default is "No".

## Bar Code Symbologies, continued

### EAN-8
- **Enabled** toggles the ability for the scanner to read EAN-8 on or off.
  Default is "Yes".
- **Code ID** is a user-definable identification letter for EAN-8,
  which is referred to in the "Use Code ID" function on page 25.
  Default is letter "FF".
- **Send Leading Digit** toggles sending or not sending a leading
  ('start bar code') digit.
  Default is "Send".
- **Send Check Digit** toggles sending or not sending a check digit.
  Default is "Send".

### Code 11
- **Enabled** toggles the ability for the scanner to read Code 11 on or off.
  Default is "Yes".
- **Code ID** is a user-definable identification letter for Code 11,
  which is referred to in the "Use Code ID" function on page 25.
  Default is letter "J".
- **Send Check Digit Number** defines the check digit.
  Default is "Send".
- **Send Check Digit** toggles sending or not sending a check
  digit.
  Default is "Send".
- **Minimum Length** defines the minimum length the user will
  accept for a valid bar code.
  Default is "3".
- **Maximum Length** defines the maximum length the user will
  accept for a valid bar code.
  Default is "48".

### Delta Code
- **Enabled** toggles the ability for the scanner to read Delta Code on or off.
  Default is "No".
- **Code ID** is a user-definable identification letter for Delta Code,
  which is referred to in the "Use Code ID" function on page 25.
  Default is letter "D".
- **Calculate Check Digit** toggles whether or not to calculate a
  check digit.
  Default is "Yes".
- **Send Check Digit** toggles sending or not sending a check
  digit.
  Default is "Send".

## Bar Code Symbologies, continued

### Supplement Code (for UPC-E, ISBN, EAN-13)
- *Two Supplement Code* toggles whether the two digit supplemental bar code is to be recognized.
  Default is "No".
- *Five Supplement Code* toggles whether the five digit supplemental bar code is to be recognized.
  Default is "No".
- *Must Present* toggles whether or not the supplemental bar code must be present in order to output data.
  Default is "Yes".
- *Insert Space Separator* toggles whether or not to output a space between the main and supplemental bar codes.
  Default is "No".

### Label Code IV and V
- *Enabled* toggles the ability for the scanner to read Label Code IV and V on or off.
  Default is "No".
- *Code ID* is a user-definable identification letter for Label Code IV and V, which is referred to in the "Use Code ID" function on page 25.
  Default is letter "B".
- *Send Check Digit* toggles sending or not sending a check digit.
  Default is "Send".

# SCANNER CONFIGURATION MANAGER

## Data Editing

Data Editing is a powerful function that can give you tremendous control over how data is exported from the MS860G.
After clicking on "Data Editing" the data editing icons become active. Click on the icon with the blue circle and white plus sign. The "Define Formula"



pop-up box to the right appears, which is divided into two sections: "Qualifier" and "Modifier".

### Qualifier

The Qualifier section defines the conditions that must be present for the scanned data to be modified, such as which symbology it must be (Codabar, Code 39, etc.), its specfic length, or what characters (defined by a match string) the scanned data must contain.
When the conditions of the Qualifier are met, the data is then modified according to the rules defined in the "Modifier", below.

### Modifier

The Modifier section contains three selections: "**From Original**", "**Add New**", and "**Delete**".

*From Original* extracts the desired data from the scan. The **Start Parameter** defines the beginning of the string of data that is to be output. The start parameter can either be defined by position starting from the beginning ("From Position"), or a specific



number of characters from the end of the string ("From Last Position"), or a specified number of characters before or after a user-defined character string ("After Matching").
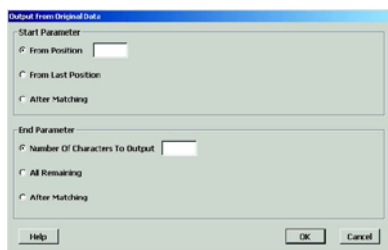
The **End Parameter** defines the end of the string of data that is to be output. Three options are available: "Number Of Characters To Be Output", "All Remaining", and "After Matching". The first two are self explanatory. "After Matching" defines the end as a specified number of characters before or after a user-defined character string.

# SCANNER CONFIGURATION MANAGER

## Data Editing, continued

**Note:**
Even if the original bar code data is not modified, if additional characters are to be added (see "Add New" below) the original Start Parameter must be defined as From Position "1" and the End Parameter defined as "All Remaining", otherwise, none of the original data will be output.

*Add New* adds characters (printing and nonprinting) to the data output from the MS860G.
These characters can be added before, after, and within the actual scanned data.
Pre-defined characters include:



- <t>      Tab
- <r>      Carriage Return
- <n>      Line Feed
- <d>      Any Digit (data editing)
- <a>      Any Letter (data editing)
- <*>      Interblock Delay (data editing)
- <">      (quotation marks)
- <dd>     Character in hexadeximal notation
- <<>      < (less than)
- <>>      > (greater than)
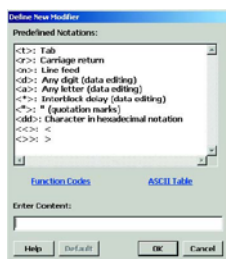
Characters must be bracketed by <> symbols.
Letters and numbers should be represented in hexadecimal format (accessible in a linked menu) to avoid confusion. For instance, the lower-case letter "t" should be entered as <74> and the numeral "5" should be entered as <35>.
Function codes (F keys, Cursor Up, Enter, etc.) can also be inserted via hexadecimal code (accessible in a linked menu).

*Delete* removes existing modifier strings.

*Move Up / Move Down* (pictured to the right) moves the modifiers up and down in relation to each other. The top modifier will be performed first and each one down the list will be performed in sequence. The original data (modified or unmodified, part or whole) will be output according to its position in the modifier sequence.
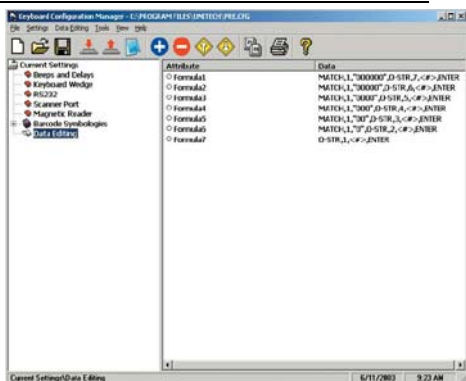
## Data Editing, continued

### Arrange Formulas

After the formulas have been created, they must be arranged in the optimum sequence by selecting formulas and using the "Move Formula" icons. This sequence is usually according to their qualifier - from least likely to occur to most likely to occur.



In the example pictured above, a series of formulas are designed to output all the data in a bar code that follows a series of "0"s. For instance, if the actual bar code data is "000045678", the desired output would be "45678" (the original minus all the 0s at the beginning of the string). If there are six 0s (Formula 1 - pictured above), then Formula 1 specifies the output begins at the seventh position. If there are five 0s, then Formula 2 dictates that output begins at the sixth position, etc. If, instead, we were to place the qualifier for two 0s above (before) the qualifier for six 0s, then Formula 2 stipulating two 0s would activate even if there were six 0s because the qualifier would stop looking for 0s after it had found two. In this case, all qualifiers with three or more 0s would be disregarded, which would not be a desirable result.

### The "Everything Else" Formula

If a formula is entered into the Data Editing Area, then all scanned bar codes will be evaluated according to this formula. If the scanned bar code does not satisfy the requirements of the Qualifier(s) (see page 57), then no data is output. Practically speaking, the scanner has been set up to scan only bar codes that are defined by the Qualifier(s). No other types of bar codes can be scanned.

The answer to this problem is to end the sequence of formulas with a formula that has no Qualifier and whose modifier includes all the scanned data (starts at position 1 and outputs "all remaining"). An example of this can be seen as Formula 7, pictured above.

# PROGRAMMING VIA SCANNER INPUT

## Introduction

In addition to the Scanner Configuration Manager software, your MS860G scanner can also be configured via bar code input by scanning in the bar codes on the following pages.

The concept (for Groups 2 through 8) is fairly simple: Parameters are associated together into groups.

In order to modify a particular parameter, first you must scan an "Enter Group X" bar code to start the procedure. For instance, to change the beep tone, first you must scan the "Enter Group 2" bar code. The scanner will emit a triple beep which indicates that the scanner has entered configuration mode. Also, the LED on the back of the scanner will start flashing green. The scanner will remain in configuration mode until the "Exit" bar code has been scanned.

Next, you must scan the bar code of the parameter (along the right hand side of the page) you'd like to modify. To modify the beep tone, scan the "A1" label.

Then select a number along the left side of the page that corresponds with the modification you wish to make. To set the Beep Tone to "High", scan the "3" bar code. Please note that factory default settings are printed in **bold face**.

If you'd like to modify another parameter within the same group, scan another parameter label now. To change "Intercharacter Delay", scan the "A3" bar code. Then scan the number that corresponds with your requirements.

After you're finished modifying your selected parameters in "Beeps and Delays", scan the "Exit" bar code at the bottom of the page to end the modification session. The scanner will emit a double beep to indicate that it is no longer in configuration mode.

An easy alternative programming method is to simply scan the bar codes in the Quick Setup section starting on the next page, if appropriate.

The MS860G can always be reset back to "Factory Default" by scanning that particular bar code on page 41.

**Note:** Groups 9 and 10 (Data Editing and TCP/IP) do not follow the same steps as described above, but have their own sets of instructions in their respective sections.

# PROGRAMMING VIA SCANNER INPUT

## Quick Setup Bar Codes

**Code ID**

||||||||||||||||||||||||||
No

||||||||||||||||||||||||||
Yes

**Scan Code**

||||||||||||||||||||||||||
U.S.

||||||||||||||||||||||||||
Alt Key

**Scanner Mode**

||||||||||||||||||||||||||
Trigger

||||||||||||||||||||||||||
Flash

**Beep**

||||||||||||||||||||||||||
None

||||||||||||||||||||||||||
Medium

# PROGRAMMING VIA SCANNER INPUT

## Quick Setup Bar Codes, continued

**EAN-8**

Default

Cut Leading Digit

Cut Check Digit

**Menu Setup**

Enable / Disable

**UPC-A**

Default

Cut Leading Digit

Cut Check Digit

**EAN-13**

Default

Cut Leading Digit

Cut Check Digit

ISBN Conversion

**Supplemental Code**

No

Yes

**UPC-E**

Default

Cut Leading Digit

Send Check Digit

UPC-A Conversion

**Display Version**

Display Version

**Factory Default**

Factory Default

# PROGRAMMING VIA SCANNER INPUT

## Beep and Delays

**Enter Group 2**

**Group Default**

**Beep Tone:**
- 0 - None
- 1 - Low
- **2 - Medium**
- 3 - High
- 4 - Low to High
- 5 - High to Low

A1

0

1

2

**Interblock Delay:**
- **0 - 0 ms**
- 1 - 10 ms
- 2 - 50 ms
- 3 - 100 ms
- 4 - 500 ms
- 5 - 1 second
- 6 - 3 seconds
- 7 - 5 seconds

3

4

5

**Intercharacter Delay:**
- **0 - 0 ms**
- 1 - 1 ms
- 2 - 2 ms
- 3 - 5 ms
- 4 - 10 ms
- 5 - 30 ms
- 6 - 50 ms
- 7 - 100 ms

6

7

8

9

**Exit**

# PROGRAMMING VIA SCANNER INPUT

## RS232

Enter Group 4

Group Default

**Baud Rate:**
0 - 300    4 - 4800
1 - 600    **5 - 9600**
2 - 1200  6 - 19200
3 - 2400  7 - 38400

C1

0

1

**Parity:**
0 - Even   3 - Space
1 - Odd    **4 - None**
2 - Mark

C2

2

3

**Data Bit:**
0 - 7
**1 - 8**

C3

4

5

**Handshaking:**
(for serial wedge)
  **0 - Ignore**
  1 - RTS enabled at Power
  Up
  2 - RTS enabled in
  Communication

C4

6

7

**ACK/NAK:**
(for serial wedge)
  **0 - Off**
  1 - On

C5

8

Exit

9

## RS232, continued

|||||||||||||
0

**BCC Character:**
(for serial wedge)
  **0 - Off**
  1 - On

|||||||||||||
C6

|||||||||||||
1

|||||||||||||
2

**Time Out:**
(for serial wedge)
  **0 - 1 second**
  1 - 3 seconds
  2 - 10 seconds
  3 - Unlimited

|||||||||||||
C7

|||||||||||||
3

|||||||||||||
4

**Data Direction:**
(for terminal wedge)
  **0 - Send to Host**
  1 - Send to Host and
  Terminal
  2 - Send to Terminal

|||||||||||||
C8

|||||||||||||
5

|||||||||||||
6

|||||||||||||
7

|||||||||||||
8

|||||||||||||
9

|||||||||||||
Exit

# PROGRAMMING VIA SCANNER INPUT

## Scanner Port

||||||||||||||||||||||

Enter Group 5

||||||||||||

Group Default

||||||||||||
0

**Terminator:**
- **0 - Enter**
- 1 - Return (on keypad)
- 2 - Field Exit or Right Ctrl
- 3 - None

||||||||||||
1

||||||||||||
2

**Code ID:**
(see page 25)
- **0 - Disable**
- 1 - Enable

**Note:** This setting does not affect EAN 128Code ID. EAN 128 has its own Code ID setting (see page 31).

||||||||||||
D 2

||||||||||||
3

||||||||||||
4

**Define Code ID:**
(see page 25)

||||||||||||
D 3

||||||||||||
5

| | |
|---|---|
| 00 - Code 39 Full ASCII | 10 - Standard 2 of 5 |
| 01 - Code 39 Standard | 11 - MSI Code |
| 02 - EAN-13 | 12 - EAN 128 |
| 03 - UPC-A | 13 - Code 32 (Italian Pharmacy) |
| 04 - EAN-8 | 14 - Delta Code |
| 05 - UPC-E | 15 - Label Code |
| 06 - Interleaved 2 of 5 | 16 - Plessey Code |
| 07 - Codabar | 17 - Code 11 (Special) |
| 08 - Code 128 | 18 - China Postal Code (Toshiba Code) |
| 09 - Code 93 | |

||||||||||||
6

||||||||||||
7

||||||||||||
8

||||||||||||
9

||||||||||||
Exit

## Scanner Port, continued

0

1

**Double Verification:**
(see page 25)
  **0 - Off**
  1 ~ 7 - On
  (verify 1 to 7 times)

D4

2

3

**Scanning Mode:**
(see page 26)
  **0 - Trigger**
  1 - Flashing
  2 - Multiscan
  3 - One Press One Scan
  4 - Test Mode
  5 - Old Laser Flash Mode
  6 - Continuous

D5

**Label Type:**
(see page 26)
  **0 - Positive**
  1 - Positive and Negative

4

D6

5

6

7

**Aim Function for Long
Range Laser Engine:**
(see page 27)
  **0 - Disable**
  1 - Enable

D7

8

**Data Length (two digits)
Send:**
(see page 27)
  **0 - Disable**
  1 - Enable

D8

9

Exit

## Scanner Port, continued

A Preamble can be inserted before, or a Postamble can be inserted after the scanned barcode data (inserting a Tab, for instance).

To insert a postamble, scan the "Postamble" (OO) bar code, scan your selected postamble from the Function Code (page 64) or ASCII Code (pages 65 to 68) Charts, and then scan the "Postamble"(OO) bar code once again.

To insert a preamble, follow the same procedure, but using the "Preamble" (PP) bar code.

| Preamble | Postamble |
|:---:|:---:|
| ‖‖‖‖‖‖‖‖‖ | ‖‖‖‖‖‖‖‖‖ |
| PP | OO |

‖‖‖‖‖‖‖‖‖
Exit

# PROGRAMMING VIA SCANNER INPUT

## Symbologies – Group 6

Enter Group 6

Group Default

**Code 39:**
(see page 28)

F1

0/**1** - Disable / **Enable**
2/3   - Full ASCII / Standard
4 - Check Digit Calculate and Send
5 - Check Digit Calculate, Not Send
**6 - Check Digit Not Calculate**
7/**8** - Send / **No Send** Start/Stop Sentinel
**9**/: - Double Labels Decoding **Off** / On
0 ~ 48 - Min. Length **0** / Max. Length **48**
(see page 51 for Min./Max. Length procedure)

0

1

2

3

4

**Interleaved 2 of 5 (ITF):**
(see page 29)

F2

0/**1** - Disable / **Enable**
2/**3**   - Fix Length On / **Off** (by first three reads)
4 - Check Digit Calculate and Send
5 - Check Digit Calculate, Not Send
**6 - Check Digit Not Calculate**
7 - Supress First Digit
8 - Supress Last Digit
**9 - Last Digit Not Supressed**
2 ~ 64 - Min. Length **10** / Max. Length **64**
(see page 51 for Min./Max. Length procedure)

5

6

7

8

9

:

Exit

# PROGRAMMING VIA SCANNER INPUT

## Symbologies – Group 6, continued

**Standard 2 of 5 /**
China Postal Code /
Toshiba Code:
(see page 30)
   **0**/1 - **Disable** / Enable
   **2**/3   - Fix Length **On** / Off (by first three reads)
   4 - Check Digit Calculate and Send
   5 - Check Digit Calculate, Not Send
   **6 - Check Digit Not Calculate**
   1 ~ 48 - Min. Length **4** / Max. Length **48**
   (see next page for Min./Max. Length procedure)

F3

**Code 32 (Italian Pharmacy):**
(see page 31)
   **0**/1 - **Disable** / Enable
   **2**/3 - Leading Character
   **Send** / No Send
   **4**/5 - Tailing Character
   **Send** / No Send

F4

**Telepen:**
   **0**/1 - **Disable** / Enable
   **2**/3 - **Standard** / Numeric
   Set

F5

**UCC/EAN 128:**
(see page 31)
   0/**1** - Disable / **Enable**
   **2**/3 - Code ID **Disable** /
   Enable
   **Note:** If EAN 128 is
   disabled, EAN 128 labels
   will be decoded as Code
   128.

F6

0

1

2

3

4

5

6

7

8

9

Exit

# PROGRAMMING VIA SCANNER INPUT

## Symbologies – Group 6, continued

|||||||||||||||
0

|||||||||||||||
1

|||||||||||||||
2

**Define the EAN 128 Fields Separator:**
Scan from the ASCII Code Chart (pages 65 to 68) to define a new fields separator.

|||||||||||||||
F7

|||||||||||||||
3

|||||||||||||||
4

|||||||||||||||
5

**Define a Separator for Double Labels:**
Scan from the ASCII Code Chart (pages 65 to 68) to define a new separator for Double Labels.

|||||||||||||||
F8

|||||||||||||||
6

|||||||||||||||
7

|||||||||||||||
8

|||||||||||||||
9

**Define Minimum and Maximum Length:**
To define minimum or maximum acceptable barcode data length, after scanning the parameter code (F1, F2, or F3), scan the "MM" or "NN" bar codes below, scan the number(s) to the left, and then scan the "MM" or "NN" bar code again. Then scan "Exit" as usual.

Min. Length

|||||||||||||||
MM

Max. Length

|||||||||||||||
NN

|||||||||||||||
Exit

# PROGRAMMING VIA SCANNER INPUT

## Symbologies – Group 7

||||||||||||||||||||||||||

Enter Group 7

||||||||||||||||
0

||||||||||||||||
1

||||||||||||||||
2

||||||||||||||||
3

||||||||||||||||
4

||||||||||||||||
5

||||||||||||||||
6

||||||||||||||||
7

||||||||||||||||
8

||||||||||||||||
9

||||||||||||||||
Group Default

**Code 128:**
(see page 31)
  0/**1** - Disable / **Enable**
  1 ~ 64 - Min. Length **1** /
      Max. Length **64**
  (see page 51 for Min./Max.
  Length procedure)

||||||||||||||||
G1

**MSI / Plessey Code:**
(see page 32)

||||||||||||||||
G2

0/**1** - **Disable** / Enable
2/**3** - Check Digit Send / **No Send**
**4 - Check Digit Double Module 10**
5 - Check Digit Module 11 Plus 10
6 - Check Digit Single Module 10
1 ~ 16 - Min. Length 1 / Max. Length **16**
(see page 51 for Min./Max. Length procedure)

**Code 93:**
(see page 32)
  0/**1** - Disable / **Enable**
  1 ~ 48 - Min. Length **1** /
      Max. Length **48**
  (see page 51 for Min./Max.
  Length procedure)

||||||||||||||||
G3

||||||||||||||||
Exit

# PROGRAMMING VIA SCANNER INPUT

## Symbologies – Group 7, continued

**Code 11 (Special):**
(see page 35)

G4

**0**/1 - **Disable** / Enable
2/**3** - One / **Two** Check Digit
4/**5** - Check Send / **No Send**
1 ~ 48 - Min. Length **1** / Max. Length **48**
(see next page for Min./Max. Length procedure)

**Codabar:**
(see page 33)

G5

0/**1** - **Disable** / Enable
2/**3** - Start & Stop Send / **No Send**
4 - Check Digit Calculate and Send
5 - Check Digit Calculate but Not Send
**6 - Check Digit Not Calculate**
7/**8** - CLSI Format On / **Off**
3 ~ 48 - Min. Length **3** / Max. Length **48**
(see next page for Min./Max. Length procedure)

**Label Code IV and V:**
(see page 36)

G6

**0**/1 - **Disable** / Enable
**2**/3 - Checksum **Send** /No Send

Exit

0
1
2
3
4
5
6
7
8
9

# PROGRAMMING VIA SCANNER INPUT

## Symbologies – Group 7, continued

**Define Minimum and Maximum Length:**
To define minimum or maximum acceptable barcode data length, after scanning the parameter code (G1 to G5), scan the "MM" or "NN" barcodes below, scan the number(s) to the left, and then scan the "MM" or "NN" bar code again. Then scan "Exit" as usual.

0

1

2

3

4

5

6

7

8

9

Min. Length

MM

Max. Length

NN

Exit

# PROGRAMMING VIA SCANNER INPUT

## Symbologies – Group 8

|||||||||||||||||||||||

Enter Group 7

|||||||||||||
0

|||||||||||||
1

|||||||||||||
2

|||||||||||||
3

|||||||||||||
4

|||||||||||||
5

|||||||||||||
6

|||||||||||||
7

|||||||||||||
8

|||||||||||||
9

|||||||||||||
Group Default

**UPC-A:**
(see page 33)

|||||||||||||
H1

0/**1** – Disable / **Enable**
**2**/3 -- Leading Digit **Send** / No Send
**4**/5 -- Check Digit **Send** / No Send

**UPC-E:**
(see page 34)

|||||||||||||
H2

0/**1** – Disable / **Enable**
**2**/3 -- Leading Digit **Send** / No Send
4/**5** -- Check Digit Send / **No Send**
6/**7** -- Zero Expansion On / **Off**
**8**/9 – **Disable** / Enable NSC=1

**EAN-13:**
(see page 34)

|||||||||||||
H3

0/**1** – Disable / **Enable**
**2**/3 -- Leading Digit **Send** / No Send
**4**/5 -- Check Digit **Send** / No Send
6/**7** – Bookland EAN (ISBN) Enable / **Disable**

**EAN-8:**
(see page 35)

|||||||||||||
H4

0/**1** – Disable / **Enable**
**2**/3 -- Leading Digit **Send** / No Send
**4**/5 -- Check Digit **Send** / No Send

|||||||||||||
Exit

# PROGRAMMING VIA SCANNER INPUT

## Symbologies – Group 8, continued

‖0‖

‖1‖

‖2‖

‖3‖

‖4‖

‖5‖

‖6‖

‖7‖

‖8‖

‖9‖

---

**Supplement Code:**
(see page 36)

‖H5‖

  **0**/1 -- Two Supplement
  Code **Off** / On
  **2**/3 -- Five Supplement Code **Off** / On
  4 -- Transmit if Supplement Code is present
  (even if Two/Five Supplement Code is on)
  5 -- Transmit only if Supplement Code is
  present (if Two/Five Supplement Code is on)
  6/7 -- Insert Space Separator / **Not Insert**

---

**Delta Distance Code:**
(see page 35)

‖H6‖

  **0**/1 – **Disable** / Enable
  **2**/3 -- Leading Digit **Calculate** / Not Calculate
  **4**/5 -- Check Digit **Send** / No Send

‖Exit‖

Exit

# PROGRAMMING VIA SCANNER INPUT

## Data Editing

Data Editing allows you to manipulate the bar code data output into the format that you require by scanning the bar codes on page 64 in addition to Function Codes and ASCII Codes on pages 65 to 68.

After scanning the "Enter Group 9" bar code, all the subsequent bar code input (except character string units) beginning with "IN_ID" must be separated by scanning comma bar codes, until you scan the final "Enter" followed by the "Exit" bar code. The "Enter Group 9" and the "Enter" bar codes are not followed by commas.

Parameters are grouped into **Qualifiers** and **Modifiers**. **Qualifiers** specify the conditions that must be met in order for data editing to occur, be it minimum or maximum data length, specific symbologies, or specific character strings present. **Modifiers** modify the data output according to pre-set rules by either removing specified parts of the data or adding user-defined data.

When programming the scanner, qualifiers must precede modifiers. Each programming parameter is output according to the following patterns:

**Qualifiers:**

**Input ID** - Specific bar code symbologies can be selected for special treatment. The programming bar codes must be entered in the following sequence: *IN_ID***, ID1, ID2, ...IDX**, - where "IN_ID" announces that the next bar code inputs refer to the various bar code symbologies according to their "Code Type" on page 60. For example, if UPC-A and Code 32 barcodes are to be singled out for data editing, the bar code scanning sequence should be "*IN_ID,3,13,*".

**Length** - Bar codes of specific length can be selected. The programming bar codes must be entered in the following sequence: *LEN***, MIN, MAX**, -where "*LEN*" announces that the next bar code inputs refer to the mini-mum and maximum length bar codes allowable. For example, if we only want data editing to apply to bar codes between 9 and 12 characters long, then the bar code scanning sequence should be "LEN, 9, 12,".

# PROGRAMMING VIA SCANNER INPUT

## Data Editing, continued

**Match** - Bar codes with specific character strings can be selected. The programming bar codes must be entered in the following sequence: ***MATCH, P1, "S1", P2, "S2", ...PX, "SX"***, - where "MATCH" announces that the next bar code inputs will define where in the data a specific string will be located, and what characters the string consists of, surrounded by quotation marks. For example, if the bar code to be selected requires the string "efgh" beginning at the 3rd position, the bar code scanning sequence should be *"MATCH,3,"efgh","*. If we're looking for "efgh" any where within the bar code, the sequence should be *"MATCH,*,"efgh","*, with the "*" character signifying that it could be anywhere in the string.

**Note:** Once a Qualifier is specified, other bar codes that do not meet the requirements of the Qualifier will be disregarded. If you would like bar codes not specified by the Qualifier to output normally, simply add another qualifier that specifies all bar codes (19), starting at position1, and outputting all remaining (#). (See example at the bottom of this page.)

**Modifiers:**

**Original Data** - Part or all of the original data string can be selected. The programming bar codes must be entered in the following sequence: ***O-STR,P,N,*** - where "*O-STR*" announces that the next bar code inputs refer to where the output should begin and how many characters should be output. For example, if 7 characters are to be output beginning with the 4th character, the bar code scanning sequence should be "*O-STR, 4,7,*". If we want all the characters after the 4th character to be output, the sequence should be "*O-STR,**4,#,**"*, with the "**#**" character signifying that the entire string (after the 4th character) should be output. Should you decide that the last two characters should not be output, the sequence would be"*O-STR,**4,#-2,**"*, with the "**#**-2" specifying all remaining minus 2.

**Special Characters**

, Comma - Used as a separator between formula parameters, beginning with the IN_ID parameter and ending with the Enter parameter.

" Quotation Mark - Used to begin and end a character string. A character string bounded by quotation marks is treated as a single unit, and would be written as "abcd".

# PROGRAMMING VIA SCANNER INPUT

## Data Editing, continued

   * Asterisk - Wild-card character used to specify any digit or position.

   # Hash sign - Wild-card character used to specify any letter or last position.

Finally, end the programming sequence with the "Enter" bar code. Do not follow it with a comma. If you need to add another formula, do so now by scanning the "IN_ID" bar code directly, followed by the rest of the second formula's parameters, and then "Enter" again. Lastly, scan the "Exit" bar code.

Thus, if we want to output just the first five characters only from UPC-A input and then follow it with three "0"s, the scanning sequence should be as follows:

   Enter Group 9 *IN_ID* , 3 , *O-STR* , 1 , 5 , " 0 0 0 " , *Enter* Exit

If we only want to treat UPC-A this way, but still want other symbologies to output normally, the scanning sequence would be as follows:

   Enter Group 9 *IN_ID* , 3 , *O-ST*R , 1 , 5 , " 0 0 0 " , *Enter*

   *IN_ID* , 19 , *O-STR* , 1 , # , *Enter* Exit

## Data Editing, continued

||||||||||||||||||||||||

Enter Group 9

||||||||||||
0

||||||||||||
1

||||||||||||
2

||||||||||||
3

||||||||||||
4

||||||||||||
5

||||||||||||
6

**Code Type:**

| | |
|---|---|
| 0 - Code 39 Full | 10 - S 2 of 5 |
| 1 - Code 39 Std. | 11 - MSI Code |
| 2 - EAN-13 | 12 - EAN 128 |
| 3 - UPC-A | 13 - Code 32 |
| 4 - EAN-8 | 14 - Delta Code |
| 5 - UPC-E | 15 - Label Code |
| 6 - I 2 of 5 | 16 - Plessey Code |
| 7 - Codabar | 17 - Code 11 (Special) |
| 8 - Code 128 | 18 - China Postal Code |
| 9 - Code 93 | 19 - All Inputs |

**Formula Format:**
Input ID: ***IN_ID***, ID1, 1D2, ...IDX,
Length: ***LEN***, MIN, MAX,
Match: ***MATCH***,
P1,S1,P2,S2,…PX,SX,
A-String:   "abc...",
O-String:   ***O-STR***, P, N,
ID1, ID2, etc. = number for Code ID
P1, P2, etc. = position
S1, S2, etc. = string, "abc..."
P = number or string for start position
N = number of characters or string to end position

||||||||||||

Group Default

||||||||||||
*IN_ID*

||||||||||||
*LEN*

||||||||||||
*MATCH*

||||||||||||
*O-STR*

||||||||||||
"

||||||||||||
#

||||||||||||
*Enter*

# PROGRAMMING VIA SCANNER INPUT

## Data Editing, continued

||||||||||||
7

||||||||||||
8

||||||||||||
9

||||||||||||
+

||||||||||||
-

**Special Characters on this sheet:**

, - delimiter to separate parameters
" - string specifier
* - specifies any digit or any position

\# - specifies any letter or all input

||||||||||||
Review

||||||||||||
*Backspace*

||||||||||||
,

||||||||||||
Exit

# PROGRAMMING VIA SCANNER INPUT

## TCP/IP

‖‖‖‖‖‖‖‖‖‖‖
△△△△W

**Enter Group 10**

For TCP/IP instructions, see page 20.
**CAUTION**
Stop the VCOM connection before configuring theTCP/IP settings for the MS860G scanner.

Before configuring TCP/IP, power off the scanner, and then scan "Enter Group 10" within the first 5 seconds after switching the scanner back on.

| | | |
|---|---|---|
| 0 | AA | I P |
| 1 | CHAN | MAS K |
| 2 | CR ($M) | MODE |
| 3 | DD | P S MODE |
| 4 | DEFAULT | RATE |
| 5 | DEL (%T) | SAVE |
| 6 | DHCP | SE |
| 7 | EE | SSI D |
| 8 | EXI T | WE P |
| 9 | G W | WK |

# PROGRAMMING VIA SCANNER INPUT

## TCP/IP, continued

| | | |
|---|---|---|
| ‖‖‖‖‖‖‖‖ | ‖‖‖‖‖‖ | ‖‖‖‖‖‖‖‖‖‖‖ |
| . (Period) | Space | WKI D |

# PROGRAMMING VIA SCANNER INPUT

## Function Codes for PC

(Characters in parentheses represent Code 39 bar code printing.)

F1 (%VA)

F2 (%VB)

F3 (%VC)

F4 (%VD)

F5 (%VE)

F6 (%VF)

F7 (%VG)

F8 (%VH)

F9 (%VI)

F10 (%VJ)

F11 (%VK)

F12 (%VL)

Cursor Right (/FC)

Cursor Left (/FD)

Cursor Up (/FE)

Cursor Down (/FF)

Page Up (/FG)

Page Down (/FH)

Tab (/FI)

Back Tab (/FJ)

Esc (/FK)

Left Enter (/FL)

Right Enter (/FM)

Right Ctrl (/FO)

Shift Make (/FP)

Ctrl Make (/FQ)

Alt Make (/FR)

Shift Break (/FS)

Ctrl Break (/FT)

Alt Break (/FU)

Insert (/FW)

Delete (/FX)

# PROGRAMMING VIA SCANNER INPUT

## ASCII Chart

(Characters in parentheses represent Extended Code 39.)

SOH ($A)

FF ($L)

SYN ($V)

STX ($B)

CR ($M)

ETB ($W)

ETX ($C)

SO ($N)

CAN ($X)

EOT ($D)

SI ($O)

EM ($Y)

ENQ ($E)

DLE ($P)

SUB ($Z)

ACK ($F)

DC1 ($Q)

Escape (%A)

BEL ($G)

DC2 ($R)

FS (%B)

BS ($H)

DC3 ($S)

GS (%C)

HT ($I)

DC4 ($T)

RS (%D)

LF ($J)

NAK ($U)

US (%E)

VT ($K)

; (%F)

# PROGRAMMING VIA SCANNER INPUT

## ASCII Chart, continued

(Characters in parentheses represent Extended Code 39.)

< (%G)

} (%R)

% (/E)

= (%H)

~ (%S)

& (/F)

> (%I)

DEL (%T)

' (/G)

? (%J)

NUL (%U)

( (/H)

[ (%K)

@ (%V)

) (/I)

\ (%L)

` (%W)

* (/J)

] (%M)

! (/A)

+ (/K)

^ (%N)

" (/B)

, (/L)

_ (%O)

# (/C)

- (/M)

{ (%P)

$ (/D)

. (/L)

| (%Q)

/ (/O)

# PROGRAMMING VIA SCANNER INPUT

## ASCII Chart, continued

(Characters in parentheses represent Extended Code 39.)

| | | |
|---|---|---|
| ‖‖‖‖‖‖‖<br>0 | ‖‖‖‖‖‖‖<br>A | ‖‖‖‖‖‖‖<br>K |
| ‖‖‖‖‖‖‖<br>1 | ‖‖‖‖‖‖‖<br>B | ‖‖‖‖‖‖‖<br>L |
| ‖‖‖‖‖‖‖<br>2 | ‖‖‖‖‖‖‖<br>C | ‖‖‖‖‖‖‖<br>M |
| ‖‖‖‖‖‖‖<br>3 | ‖‖‖‖‖‖‖<br>D | ‖‖‖‖‖‖‖<br>N |
| ‖‖‖‖‖‖‖<br>4 | ‖‖‖‖‖‖‖<br>E | ‖‖‖‖‖‖‖<br>O |
| ‖‖‖‖‖‖‖<br>5 | ‖‖‖‖‖‖‖<br>F | ‖‖‖‖‖‖‖<br>P |
| ‖‖‖‖‖‖‖<br>6 | ‖‖‖‖‖‖‖<br>G | ‖‖‖‖‖‖‖<br>Q |
| ‖‖‖‖‖‖‖<br>7 | ‖‖‖‖‖‖‖<br>H | ‖‖‖‖‖‖‖<br>R |
| ‖‖‖‖‖‖‖<br>8 | ‖‖‖‖‖‖‖<br>I | ‖‖‖‖‖‖‖<br>S |
| ‖‖‖‖‖‖‖<br>9 | ‖‖‖‖‖‖‖<br>J | ‖‖‖‖‖‖‖<br>T |
| ‖‖‖‖‖‖‖<br>: (/Z) | | ‖‖‖‖‖‖‖<br>U |

## ASCII Chart, continued

(Characters in parentheses represent Extended Code 39.)

V

g (+G)

q (+Q)

W

h (+H)

r (+R)

X

i (+I)

s (+S)

Y

j (+J)

t (+T)

Z

k (+K)

u (+U)

a (+A)

l (+L)

v (+V)

b (+B)

m (+M)

w (+W)

c (+C)

n (+N)

x (+X)

d (+D)

o (+O)

y (+Y)

e (+E)

p (+P)

z (+Z)

f (+F)

SP (Space)

# SPECIFICATIONS

**DECODER**

|  |  |
|---|---|
| Symbologies: | China Postal Code, Codabar, Code 11, Code 32, Code 39 (Standard and Full ASCII), Code 93, Code 128, Delta Code, EAN-8, EAN-13, EAN 128, Interleaved 2 of 5, Italian Pharmacy, Label Code IV and V, MSI Code, Plessey Code, Standard 2 of 5, UPC-A, UPC-E |
| Operation Mode: | Trigger, Flash, Multiscan, and One Press-One Scan |
| Interfaces: | PS/2, RS232, TCP/IP |
| Configuration: | Via Scanner Configuration Manager software (downloadable from http://www.ute.com/) or bar code setup menus in manual |
| Data Editing: | Almost unlimited |

**ELECTRICAL**

|  |  |
|---|---|
| Battery Type: | Lithium-ion |
| Battery Capacity: | 1900mAh - charged via cradle |
| Battery Charging Time: | Fully charged (4.2V) in 4 to 5 hours |
| Operating Time: | 16 hours |
| Cradle Power: | Via a separate 9VDC / 2A power supply |

# SPECIFICATIONS

**MECHANICAL**

| | |
|---|---|
| Scanner Dimensions: | Length - 5" (126mm)<br>Width = 3.25" (83mm)<br>Height = 5.625" (143mm) |
| Cradle Dimensions: | Length - 8.125" (206mm)<br>Width = 3.8125" (97mm)<br>Height = 2.25" (57mm) |
| Scanner Weight: | 11 oz. (312 grams) |
| Cradle Weight: | 14.5 oz. (410 grams) |

**ENVIRONMENTAL**

| | |
|---|---|
| Temperature: | Operating: 32° to 122° F (0° to 50° C)<br>Storage: -4° to 140° F (-20° to 60° C) |
| Humidity: | 5% to 95% RH non-condensing |
| Mechanical Shock: | 5 foot (1.5M) drop to concrete |
| ESD Protection: | 8K Contact and 12K Air |

**COMMUNICATION**

| | |
|---|---|
| Radio Frequency: | 2.4GHz compliant 802.11b protocol |
| Scalability: | Point to point, multi point |
| Range: | 30M line of sight |

\WLAN Default Settings:

| Item | Default Setting |
|---|---|
| IP Address | 192.168.1.250 |
| IP Subnet Mask | 255.255.255.0 |
| Gateway IP Address | 192.168.1.254 |
| SSID | Wlandemo |
| RF Channel | 6 |
| WEP | Disabled |
| Authentication Type | Auto |

RS232 Default Settings:

| Item | Default Setting |
|---|---|
| Baud Rate | 38400 |
| Data Length | 8 (fixed) |
| Parity | None (fixed) |
| Stop Bit | 1 (fixed) |
| Flow Control | None |

# TROUBLESHOOTING

## Generic Scanner Troubleshooting Tips

Most problems that you might encounter with your scanner can be solved using the following procedures:

- **Try scanning other bar codes.** If your scanner can scan other types of bar code symbologies, but cannot scan your barcodes, first check to see if your particular bar code symbologyis enabled. If it is, try the scanner on the same bar code type in the Bar Code Test Chart in the back of this manual. Then, insure that your bar codes are crisp and clear.

- **Reset to Factory Default.** Scan the "Factory Default" barcode on page 41 to reset your scanner back to factory default. Caution: This procedure will erase special configurations that you would have created.

- **Test the scanner on other ports.** Unitech scanners are built to the highest standards, and a perceived scanner malfunction may actually be a malfunction in the host computer. Test the scanner on the host's other ports if possible or, in necessary, on other systems to verify that the problem is actually in the scanner and not in the host computer.

# TROUBLESHOOTING

## Problems and Solutions

### Problem: Scanner doesn't light up.

If the scanner does not emit a light when the trigger is pressed, make sure the scanner is switched on (see page 5), and/or that the battery is charged (see page 7)

### Problem: Scanner lights up but doesn't beep.

If the scanner emits a light, but doesn't beep when scanning a bar code, try bar codes of different symbologies. If other types of bar codes scan properly, then it might be that the scanner is not configured to scan your particular symbology. If the scanner can scan other bar codes of the same symbology, then other parameters (such as minimum/maximum length, etc.) may have to be adjusted. Insure that your bar code has been created properly, with crisp edges and start/stop sentinels. For instance, Code39 bar codes require asterisk (*) start/stop sentinels at the beginning and end of the data string (*123ABC*). Avoid glossy surfaces or glossy inks for your bar codes. A glossy black surface may be indistinguishable from a white surface to your scanner because of the reflected light. Try photocopying your bar code and scanning the copy to determine if glossiness may be a factor.

### Problem: Scanner makes four high-low beeps when at-tempting to scan.

The scanner has not been properly configured. A full reset is required by scanning the "Factory Default" bar code (see page 41), and switching the scanner off and back on again (see page 2, item 4).

## Problems and Solutions, continued

**Problem: No output from scanner.**

Try the scanner on other com ports (if available) or other computers to see if it's a hardware problem. If the scanner appears to scan (emits a light and beeps), but does not output data, try scanning into a HyperTerminal session to see if it's an application problem. When testing your scanner in HyperTerminal, make sure that:

Bits per second = 9600
Data bits = 8
Parity = None
Stop bits = 1
Flow control = None

**Problem: VCOM cannot connect to the MS860G.**

Step 1: Make sure the Access Point's "Data" LED is flashing green. Test the AP with input from other sources.

Step 2: Triple-check that all network settings match.

Step 3: To verify that the COM# you are trying to use isn't already taken, do the following: Click Control Panel / System / Hardware / Device Manager. Click the ⊞ next to "Ports (COM &LPT).

You should see
 Communications Port (COM1) at least. Make sure that the com port number that you're trying to use in VCOM isn't already listed.

Step 4: Make sure ComtoKey is off or set to "Disable Com Port" before clicking "Start" in VCOM. Likewise, disable any other program that accesses a com port (like POS software, database input programs, etc.) because these will cause VCOM to fail by locking up the com port.

# TROUBLESHOOTING

## Problems and Solutions, continued

Step 5: Close VCOM and test the MS860G's network connection as follows:

Open a DOS session (Start / Run / type "cmd"). Type "ping ##.##.##.##" (replacing # symbols with your MS860G's actual IP address).The results should be similar to that below:

```
Z:\>ping 10.0.0.68

Pinging 10.0.0.68 with 32 bytes of data:

Reply from 10.0.0.68: bytes=32 time=197ms TTL=128
Reply from 10.0.0.68: bytes=32 time=118ms TTL=128
Reply from 10.0.0.68: bytes=32 time=140ms TTL=128
Reply from 10.0.0.68: bytes=32 time=163ms TTL=128

Ping statistics for 10.0.0.68:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 118ms, Maximum = 197ms, Average = 154ms

Z:\>_
```

If no packets are found, try a few more times. If the ping "times out" consistently, then the MS860G is not connected to the network and you need to start your setup over. If 1 to 3 packets are received, then you are too far from the Access Point and have a weak connection. Steps to resolve this include:

- Get closer to the Access Point.
- If the AP has an antenna, get it as high in the air as possible.
- Disable the AP's Power Saving option (if it has one). Set the AP for maximum power usage (if possible).
- Set the MS860G's Power Saving mode to "off".
- Concrete walls, large metal objects, etc. can impede the WiFi signal and should be ac-counted for and avoided.

# BAR CODE TEST CHART

Codabar

A22357000599876B

Interleaved 2 of 5

0987654321

Code 39 with Check Digit

UNI TECH- E

EAN-8

8012 3453

Unitech 128
Code 128

Code 39

W+ E + D + G + E

EAN-13

3 045214 834123

(01)054123456789(01)659344
EAN 128

# BAR CODE TEST CHART

UPC-A

```
0  47669 13716  6
```

UPC-E

```
0 123457 2    99
```

```
9 789576 302398    0 0 2 7 0
```

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